



**LUCINTEL INSIGHT  
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## **FOUR TRENDS SHAPING THE FUTURE OF THE FOOD PROCESSING MARKET**

Food manufacturers are coming up with a growing array of new technologies that have the potential to improve conventional food processing processes. Some of the key technological trends in the food processing market are the use of non-thermal technologies, isochoric freezing for preservation of frozen food, and solar food processing. The major drivers for this market are increasing demand for ready-to-eat food products, changing lifestyles, and an increase in trends

toward nuclear families and working women.

The food processing market is divided into several segments, such as beverages, dairy, meat and poultry, convenience food and snacks, fruits and vegetables, seafood, and others. Key players of the food processing market, from the product development side, include Cargill Foods, Nestle, PepsiCo, Archer Daniels Midland, and Unilever. These have been working on different strategies to drive sales using highly influential marketing approaches; however, as we examine the challenges and opportunities ahead in this market, companies can benefit from a strategy of developing non-thermal food processing technologies, as these eliminate the use of high temperatures, as well as considering the key target market trends we have identified. Lucintel predicts that the global food processing market will be valued at \$6.4 trillion by 2025, with an expected CAGR of approximately 4.1% between 2020 and 2025.

Lucintel identifies four trends set to influence the global food processing market. Most of the industry players and experts agree that these four trends will accelerate developments in the food processing industry in the near future. In terms of the widespread knowledge about the food processing market already on the horizon, there is still a lack of unified perspective on the direction the industry is moving to proactively address developments. To help bring more clarity to this gap, our study aims to provide insights concerning the direction that changes are taking and how these changes will impact the food processing market.

## 1. Non-Thermal Technologies for Food Processing

One of the main concerns for food producers is how to extend shelf life without compromising the taste or quality of the food. The advantage of non-thermal technologies is that they eliminate the use of high temperatures during processing while achieving microbial inactivation and reducing detrimental changes in physical or sensory properties such as taste, smell, color, or consistency of foods. The use of non-thermal technologies such as high-pressure processing (HPP), pulsed electric fields (PEFs), cold plasma, and ultrasound present a number of benefits



for food preservation.

### **High-Pressure Processing (HPP)**

High-pressure processing (HPP) is a non-thermal food preservation technique that inactivates harmful pathogens and microorganisms by using pressure of approximately 400–600 MPa. High-pressure processing preserves the freshness and taste of the product at a higher level, has low processing losses, and has a high product yield.

This technology is used to preserve beverages, juices, vegetables, fruits, meat products, fish and seafood, and ready-to-eat foods. It preserves animal products to help increase the shelf life of goat cheese and yogurt, and decreases cheese ripening time.



### **Pulsed Electric Fields (PEFs)**

Pulsed electric fields involves a non-thermal food preservation technology that uses short pulses of electricity for microbial inactivation and causes minimal harmful effects on food quality attributes. PEF treatments affect microbial inactivation in milk, milk products, juices, egg products, and other liquid foods.



### **Cold Plasma Treatment**

Cold plasma has been emerging as a food processing technology in recent years. The cold plasma processing system is supported by a ceramic electrode and a high-frequency plasma generator. Plasma components can interact with proteins and modify their conformations. Cold



plasma inactivates foodborne pathogens by causing damage to cell membranes, DNA, and other cellular components by reactive chemical species or UV light. Cold plasma is used as a powerful disinfection tool for decontamination in packaging and after-packaging of food products. It is used for dry disinfection of solid and liquid foods such as meat, fish, sprouted seeds, dry milk, spices, herbs, grains, and fresh products.



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### **Ultrasound**

Ultrasound technology is applied in food processing to improve processes such as food preservation, manipulation of texture, mass transfer, assistance of thermal treatments, and food analysis. It is effective against vegetative cells, spores, and enzymes.

Ultrasound technology helps in maximizing food quality, minimizing processing, and ensuring the safety of food products. It is used to increase microbial safety in fruit juices.



## **2. Isochoric Freezing for Preservation of Frozen Food**

Isochoric freezing is a new technology that preserves food products at subfreezing temperatures without damage due to ice crystal formation inside the product. It has relatively low energy requirements. Isochoric freezing can lead to reduction of microorganisms during storage. According to the Institute of Food Technologists (IFT), the global frozen food market is projected to reach \$282.5



billion by 2023. Many delicate texture foods, such as fruits and vegetables, are not suitable for traditional freezing as they deteriorate significantly. Isochoric freezing offers the potential to freeze these foods and maintain their fresh-like quality, which can result in significant market growth for these products.

### 3. Solar Food Processing

Solar food processing technology provides better quality foods at low or no additional energy cost. The uses of solar food processing include drying crops, roasting different kinds of nuts, baking bread and cakes, and conservation of fruits and vegetables. Various solar concentrators provide excellent boiling, steaming, blanching, and roasting capabilities,



while solar air dryers/heaters can effectively remove moisture. A number of solar dryers, collectors and concentrators are currently being used for various steps in food processing and value enhancement. The Society for Energy, Environment and Development (SEED) has developed a solar cabinet dryer with forced circulation which can be used for dehydration and development of value-added products from locally grown fruits, leafy greens, vegetables, and forest produce.

### 4. Gaseous Chlorine Dioxide as Sanitizing Solution

Chlorine dioxide ( $\text{ClO}_2$ ) applied as an aqueous solution on foods and food contact material supports then reduction of bacterial pathogens by 99.9%. Gaseous chlorine dioxide  $\text{ClO}_2$  can deactivate pathogens in hard-to-reach places on fruits and vegetables. Aqueous  $\text{ClO}_2$  is generated on demand and injected into water to make the sanitizing solution, which is then used



as a rinse, drench, or wash. Some of the benefits of chlorine dioxide in food processing are as follows: It can prolong the life of food products; its powerful oxidizing capacity makes it effective in fighting bugs and bacteria which can be present in food facilities; and gaseous chlorine dioxide is used for disinfection in packaging of fresh meat, meat products and other produce because  $\text{ClO}_2$  has a strong antimicrobial effect with minimal impact on the environment.

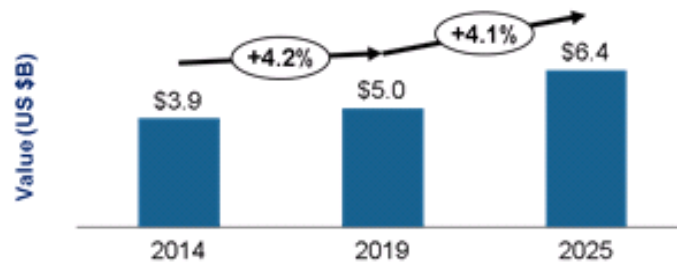


## Strategic Considerations for Key Players in the Food Processing Market

The food processing industry is dynamic and ever-changing. Successful industry players are necessarily masters of innovation, change and adaptation. To retain this status, they need to be attentive to current trends. We believe there will be promising opportunities for food processing in the beverage, dairy, meat and poultry, convenience food and snack, fruit and vegetable, and seafood industries. As per Lucintel's latest market research report (Source: <https://www.lucintel.com/food-processing-market.aspx>), the [food processing market](#) is expected to grow with a CAGR of approximately 4.1% between 2020 and 2025, and to reach \$6.4 trillion by 2025. This market is primarily driven by the increasing demand for ready-to-eat food products, changing lifestyles, and an increase in trends toward nuclear families and working women.



### Trends and Forecasts for the Global Food Processing Market (US \$T) (2014-2025)



Source: Lucintel

Whether you are new to the food processing market or an experienced player, it is important to understand the trends that impact the development process, as these trends as listed will lead players to create long-term strategy formulation that will allow them to remain competitive and successful in the long run. For example, to capture growth momentum, some of the strategic considerations for players in the food processing market are as follows:

- Food processing market players can increase their capabilities in emerging non-thermal food processing technologies such as high-pressure processing, pulsed electric fields, and cold plasma.
- Players can focus on manufacturing food products with less or even no use of preservatives, and increase the emphasis on health benefits.
- Food processing players can boost food processing efficiency by retrofitting production lines using new freezing and chilling technologies.
- Investment in increasing competencies to reduce detrimental changes in physical or sensory properties of food
- Research and development activities to develop low-cost food processing technologies

**Note:** In order to gain better understanding, and learn more about the scope, benefits, companies researched, as well as other details in the food processing market report from Lucintel, click on <https://www.lucintel.com/food-processing-market.aspx>. This comprehensive



report provides you with in-depth analysis on market trends and forecast, segment analysis, regional analysis, competitive benchmarking and company profiling of key players. In addition, we also offer **strategic growth consulting** to meet your customized needs. We have worked with many PE firms and corporate customers in the process of their market entry and M & A initiatives.





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